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INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT
CD NO.

50X1-HUM

COUNTRY USSR

SUBJECT Scientific - Medicine, new methods and drugs

DATE OF INFORMATION 1952

HOW PUBLISHED Twice-weekly newspaper

DATE DIST. 23 Aug 1952

WHERE PUBLISHED Moscow

NO. OF PAGES 3

DATE PUBLISHED 3 Apr 1952

LANGUAGE Russian

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

SOURCE Meditsinskiy Rabotnik.

RECENT USSR WORK ON THE PATHOGENESIS AND TREATMENT OF HIGH BLOOD PRESSURE

Ye. Shmidt M. Speranskiy

A joint session of the Institute of Therapy and the Institute of Neurology, Academy of Medical Sciences USSR, took place /date not given/ with the participation of more than 700 scientific workers who came from 58 cities of the USSR. During this session, problems of the pathogenesis and treatment of high blood pressure were discussed.

Work done at the Institute of Therapy has established that there are two groups of patients: one showing an approximate equilibrium between stimulation and inhibition, and one exhibiting predominance of stimulation with weakly expressed inhibition. Patients belonging to the first group can be successfully treated with therapeutic sleep; those of the second group do not show any improvement as a result of this treatment. L. I. Aleksandrova stated that in the majority of cases sleep therapy yields good results by lowering excitability and strengthening inhibition processes. In cases where the cortical neurodynamics are characterized by a strong predominance of processes of stimulation, sleep therapy is ineffective: it can be applied only after overstimulation has been eliminated by other measures. Patients having high blood pressure in an advanced stage do not sleep well and do not show improvement.

In studies of metabolism during prolonged therapeutic sleep, L. K. Bauman and E. S. Prokhorova found that there is sharp lowering of the elimination of thiamine with urine. This finding is significant from the practical standpoint, because the toxic condition which occasionally accompanies therapeutic sleep can be eliminated by administering thiamine.

L. I. Ll'ina and Ye. A. Zhirmunskaya reported on changes in the electrical activity of the cerebral cortex. They demonstrated that sleep therapy produces changes in this activity and that it depresses the processes of stimulation. Prof I. O. Sokol'nikov and I. K. Grabenko presented convincing data showing that

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the metabolism of persons suffering from hypertension is modified by therapeutic sleep. According to their results, hypertonics show accelerated fission metabolism of proteins in tissues and slowed-down synthesis of high-molecular products of protein metabolism. Prolonged sleep then brings the metabolism back to normal.

Papers by L. G. Chlenov, L. B. Perel'man, L. M. Sherman, A. I. Polyantseva, Ye. A. Denisova, M. A. Anikin, G. V. Sergayev and others summarized data on the treatment of high blood pressure with antisympathin, dibasol, and short-wave diathermy. Antisympathin, the use of which was proposed by A. A. Titayev, Doctor of Biological Sciences, is a biological preparation. In cases of high blood pressure, the amount of sympathin in the blood diminishes. In acute conditions it disappears altogether. Application of antisympathin brings about lowering of arterial blood pressure and weakening or disappearance of individual oppression symptoms, particularly in the second stage of the disease. An effective method of treating hypertonic crises is intramuscular injection of dibasol (2-3 ml of a 1 percent solution per injection are used). Injection of magnesium sulfate (10 ml of a 25 percent soln intravenously) is also effective in crises. Application of short-wave diathermy in the region of the kidneys or of the neck as well as that of the carotid sinuses was found to improve the general condition and to lower the pressure to some extent.

To combat cerebral disturbances (headaches, vertigo, disturbances of sleep) which represent grave symptoms of hypertension, one applies a temporary bloodless ligature to the vascular-nerve bundle of the temple. The ligature is applied under ambulatory conditions for 7-10 days. The blood vessel is not compressed completely. A beneficial effect of this treatment was noted in 84 percent of the cases.

Prof L. G. Chlenov and his co-workers established that the functional condition of analysors (auditory, vestibular, and that of pain sensation) changes in an early stage of the disease, so that hypesthesia and instability of thresholds are exhibited. At the same time more complex functions, for instance, space-judgment, exhibit hypoesthesia even at the beginning of the disease. In further stages of the disease the tendency towards lowering of sensitivity is noted in all analysors.

Prof P. G. Snyakin, using the method of determining the functional mobility of the retina which he had developed earlier, discovered that instability of the reaction of the visual analysor to changes in illumination of the environment occurs in the first stage of the disease, and that paradoxal reactions are occasionally exhibited. He also found that the fluctuations of visual indices do not depend on the level of blood pressure.

A. F. Bibikova presented a report entitled "The State of the Nerve Apparatus of the Cardiac Mortal and Carotid Sinus Zones in Experimental Hypertension." In this report she stated that the receptors (particularly those of the arcus aortae) are affected soon after the onset of hypertension. However, the changes in question are not destructive and do not have diffuse distribution. Side by side with affected receptors there are some which are unchanged. The results reported in this case confirm earlier findings by USSR physiologists and acquire particular significance in the light of recent work on the reflex mechanism of the action of renin.

Scientific Associates Ye. A. Kakushkina and V. N. Mentova had demonstrated that the cholinesterase level of blood serum rises as the arterial pressure increases. According to them, application of phosphacol, which exerts a lasting anticholinesterase effect, produces simultaneous lowering of cholinesterase activity and reduction of arterial pressure.

E. T. Kovaleva by prolonged intravenous introduction of renin to dogs, succeeded in bringing about absence of a reaction to renin; i. e., the renin no longer exerted a pressor effect. Loss of the ability to react to renin by a rise in blood pressure is accompanied by appearance of substances which neutralize renin (antirenin). This is regarded as a manifestation of the general protective reactivity of the organism, in which the central nervous system plays a leading role.

In the communication, "Effect of Hypertension on the Development of Experimental Atherosclerosis," V. S. Smolenskiy indicated that hypertension considerably expedites and accelerates development of atherosclerosis of the aorta, bringing about diffuse deposition in the aorta wall of lipoids which have been introduced.

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